
PROPOSED PLAN FACT SHEET



STAUFFER CHEMICAL (LEMOYNE PLANT) SITE STAUFFER CHEMICAL (COLD CREEK PLANT) SITE

REMEDY AMENDMENT FOR OPERABLE UNIT THREE COLD CREEK SWAMP

Region 4

July 2010

PURPOSE of EPA's PROPOSED PLAN

This **Proposed Plan** fact sheet describes proposed amendments to the 1993 selected remedy for contaminated sediments located in two zones of the Cold Creek Swamp. The U.S. Environmental Protection Agency (EPA) is issuing this fact sheet for Operable Unit Three (OU3) of the Stauffer Chemical LeMoyne Plant and adjacent Cold Creek Plant Superfund Sites (Sites) located in Mobile County, Alabama. The purpose for issuing this Proposed Plan is to provide an opportunity for public comment on proposed changes to the OU3 remedy selected in 1993. EPA, in consultation with the Alabama Department of Environmental Management (ADEM), will amend the remedy only after public comments have been considered. Terms in **bold** print are explained in a glossary on page 14 of this plan. Comments on this plan and its proposed remedy amendments can be submitted to EPA during the 30-day comment period from **July 31, 2010 to August 30, 2010**. EPA's final decision on amending the 1993 remedy will be issued in an **Amended Record of Decision (AROD)** that will contain a **Responsiveness Summary** addressing all comments received during the public comment period.

PUBLIC COMMENT PERIOD: **July 31, 2010 to August 30, 2010**

EPA will accept written and verbal comments on the Proposed Plan during the public comment period in any of the following three (3) ways:

MAIL

Mr. Michael Arnett
Remedial Project Manager
Superfund Remedial Branch
U.S. Environmental Protection Agency Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303-3104
404-562-8921

E-MAIL

arnett.michael@epa.gov

FACSIMILE

404-562-8788

PUBLIC MEETING: August 2, 2010

EPA will hold a public meeting to present the Proposed Plan on Monday, August 2, 2010, from 6:00 pm to 8:00 pm at the LeMoyne Emergency Services, Inc. building located at 13145 Highway 43 North, Axis, Alabama 36505.

Administrative Record and Information

Repository:

Site information may be viewed at the following locations:

Satsuma Branch Library

5466 Old Highway 43 North

Satsuma, Alabama 36572

(251) 679-0700

Hours:

Monday, Wednesday, Friday: 10:00 am – 5:00 pm

Tuesday, Thursday: 10:00 am – 6:00 pm

Saturday: 9:00 am – 2:00 pm

Sunday: Closed

U.S. EPA – Region 4

Superfund Records Center

61 Forsyth St., SW

Atlanta, GA 30303

404-562-8862

Hours:

Monday through Friday: 8:00 am – 4:00 pm

Saturday and Sunday: Closed

EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** or **Superfund**, (Pub. L. No. 96-510), as amended by the Superfund Amendments and Reauthorization Act (SARA), (Pub. L. No. 99-499), 42 U.S.C. § 9617(c), and the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**, 40 C.F.R. Part 300. See 40 C.F.R. § 300.430(f)(2) and 40 C.F.R. § 300.435(c)(2)(i). This Proposed Plan summarizes information that can be found in greater detail in the documents contained in the **Administrative Record** file for the Sites. EPA and ADEM encourage the public to review these documents to gain a more comprehensive understanding of the Sites and the Superfund activities that have been conducted at the Sites.

SITE BACKGROUND

The Stauffer Chemical (LeMoyne Plant) and the adjacent Stauffer Chemical (Cold Creek Plant) Superfund Sites are located approximately 25 miles north of Mobile, Alabama on U. S. Highway 43 (see Figure 1). The LeMoyne Plant currently

manufactures multi-product organic and inorganic chemicals including carbon disulfide, sulfuric acid and Crystex, a proprietary sulfur compound. Past production at the facility included carbon tetrachloride, chlorine, and caustic soda (sodium hydroxide). Agricultural pesticide and herbicides, including thiocarbamates, have been manufactured at the Cold Creek Plant.

Stauffer Chemical (LeMoyne Plant)

The Stauffer LeMoyne Plant started operations in 1953 under the ownership of Stauffer Chemical Company (SCC) and is currently owned by Akzo Nobel Chemicals, Incorporated (Akzo Nobel). From 1965 to 1974, waste from the plant activities was placed in an unlined landfill located on the eastern side of the property. The waste included brine mud, plant refuse, used samples, and absorption oil. The LeMoyne landfill was closed in 1975 with an impermeable membrane cap and side-wall liner.

Until 1975, wastewaters generated at the LeMoyne Plant and Cold Creek Plant were discharged to the unnamed tributary flowing through the Upper Arm Swamp Zone of the Cold Creek Swamp. Included in LeMoyne Plant's discharge were wastewaters from the plant's chlorine manufacturing operation. Mercury was used in the chlorine manufacturing process which resulted in the process wastewaters containing mercury. The LeMoyne Plant no longer manufactures chlorine and the chlorine manufacturing operation has been dismantled and closed. Currently, both plants are permitted to discharge wastewaters to the Mobile River via a wastewater pipeline constructed in 1975.

From 1965 to 1974, a small area on the western side of the LeMoyne facility was leased to the Halby Chemical Company (HCC), which manufactured dye chemicals, including sodium hydrosulfide. Witco, Inc. purchased the HCC facility in 1974 and continued to operate the plant until 1979. Witco Inc. is now part of Chemtura Corporation. Waste products and effluent were held in an on-site pond and eventually discharged to the Cold Creek Swamp. The pond is now filled and closed.

Stauffer Chemical (Cold Creek Plant)

Directly adjacent to the LeMoyne Plant, the Stauffer Cold Creek Plant began operation in 1966 under the ownership of SCC and is currently owned by Syngenta Crop Protection, Inc. Until 1974, solid wastes were placed in two disposal sites referred to as the Cold Creek North and South Landfills. The wastes stored in the Cold Creek landfills were water treatment plant sludge, used sand blasting sand, generator coke, incinerator ash, and filtrate waste. The landfills were closed in 1974 with geomembrane caps and side wall liners. A clay-lined lagoon was used to store and neutralize waste water until 1975. Waste waters were discharged to the Cold Creek Swamp. Currently, the plant's permitted waste water discharge is to the Mobile River.

Both Sites

The LeMoyne Plant and the Cold Creek Plant Sites were placed on the Superfund National Priority List (NPL) in September of 1983. The Potentially Responsible Parties (PRPs) completed an initial Remedial Investigation (RI) of both sites in July 1988 and a Feasibility Study in January 1989. Akzo Nobel completed a Focused Feasibility Study (FFS) in 2010.

OU3 SITE CHARACTERISTICS

The Cold Creek Swamp is located in the northeast section of the Stauffer Superfund Sites (see Figure 2). The Cold Creek Swamp encompasses approximately 650 acres situated between U.S. Highway 43 to the west and the Mobile River to the east. The wetland is bounded by the Alabama Power Company Barry Steam Generating Plant discharge canal to the northeast, the Mobile River to the east, and the manufacturing facilities to the south and west. While this area is an industrial corridor, a large portion of the land is undeveloped, particularly in the bottomland areas. The surrounding area is sparsely populated and consists primarily of bottomland hardwoods and other wetlands. It is situated along the Mobile River, approximately 10 miles south of the confluence of the Tombigbee and Alabama Rivers and 20 miles north of Mobile Bay. Surrounding

land use in the immediate vicinity of Cold Creek Swamp is predominately industrial, related to chemical processing and electrical power generation. However, some small, residential communities are located within a three mile radius.

Cold Creek drains the wetland, flowing generally east through the wetland and ultimately discharging to the Mobile River. The uppermost portion of the wetland is located on the LeMoyne and Cold Creek Plant properties and is drained by an unnamed tributary to Cold Creek.

SCOPE AND ROLE OF THE ACTION

EPA issued a Record of Decision (ROD) on September 27, 1989, to address groundwater contamination at both Sites. In this ROD, EPA established the following Operable Units:

- Operable Unit 1 (OU1) to address contaminated groundwater at both Sites;
- Operable Unit 2 (Cold Creek Plant) and Operable Unit 2 (LeMoyne Plant) (OU2) to address Site specific groundwater contamination source areas;
- Operable Unit 3 (OU3) to address mercury contamination in the Cold Creek Swamp.

The Cold Creek Plant OU2 ROD was issued on August 16, 1995. The LeMoyne Plant OU2 ROD was issued on March 18, 1999.

The Cold Creek Swamp OU3 ROD was issued on September 17, 1993. The OU3 ROD remedy addresses the ecological risk posed by mercury-contaminated sediments deposited in the Upper Arm Swamp Zone and the Middle/Lower Swamp Transition Zone areas of Cold Creek Swamp. The OU3 ROD provides for the following:

- Implementation of multimedia capping on the Upper Arm Swamp Zone with surface water diversion. The cap will consist of clean soil, a compacted clay layer, a high density polyethylene gas-venting layer, a drainage layer, and a soil revegetation layer.

- Sheet piling constructed in two cross-sectional cells as an in-stream barrier to isolate the Upper and Middle Swamp Zones.
- Creation of wetlands using native species in the new surface water diversion channel as mitigation of the wetland area destroyed by the capping of the Upper Arm Swamp Zone.
- Excavation of contaminated soil from the Transition Zone and disposal of it in the Upper Arm Swamp Zone before capping. The actual extent of excavation will be determined during the Remedial Design phase.
- Revegetation of the Transition Zone and restoration to a wetland status.
- Annual monitoring of the entirety of Cold Creek Swamp for 10 years after remedial action is completed.
- Long-term monitoring to assess the long-term effectiveness of capping as a containment action.
- Engineering and institutional controls including building up of the levees between Cold Creek Swamp and the Mobile River to limit the exchange of contaminants to the river. Posting of "No Fishing" and "No Hunting" signs are also required.

In a May 1996, Explanation Of Significant Differences (ESD) for OU3, EPA removed the 1993 ROD requirement for a levee between the Cold Creek Swamp and the Mobile River. The ESD required that the long-term monitoring program for the Cold Creek Swamp include monitoring of a section of the Mobile River.

The purpose of this Proposed Plan is to seek public comment on EPA's proposed amendments to the remedy selected in the 1993 OU3 ROD (as modified by the 1996 ESD).

CLEANUP LEVELS

The 1993 OU3 ROD cleanup levels are focused on the uptake of mercury into the biota in the Cold

Creek Swamp. Because of the nature of mercury in the wetland system and the fact that methylation of mercury is a constant process and very difficult to measure in sediment, the measurement of mercury body burdens is the most accurate method for determining if contaminants in Cold Creek Swamp are at levels which may adversely affect the ecosystem. Therefore, the 1993 OU3 ROD proposed a target level of 0.5 ppm mercury in whole bodies of bottom feeders, carnivorous, and omnivorous fish and a standard of 1.1 ppm mercury in muscle, kidney, and brain tissue of upper trophic level mammals. In this Proposed Plan, EPA is proposing to change the target level to 0.3 ppm mercury in edible fish fillet and to replace the standard for upper trophic level mammals with a standard of 0.2 ppm mercury in whole body of forage-size fish. The evaluation of cleanup levels described in the Proposed Plan will also consider regional background fish tissue levels.

PROPOSED CHANGES

EPA is proposing the following amendments to the OU3 ROD:

- Eliminate the 1993 ROD requirement that a multimedia cap be constructed over the contaminated sediments in the Upper Arm Swamp Zone.
- Eliminate the 1993 ROD requirement that a surface water diversion channel be constructed to divert surface water flow around the capped area of the Upper Arm Swamp Zone.
- Eliminate the 1993 ROD requirement that sheet piling be used to divide the Upper Arm Swamp Zone into two cells.
- Eliminate the 1993 ROD requirement that contaminated soils in the Middle/Lower Swamp Transition Zone be excavated and disposed in the Upper Arm Swamp Zone before capping.
- Eliminate the 1996 ESD requirement for long term monitoring of a section of the Mobile River. The need to conduct monitoring in the

River, the type of monitoring, and the monitoring frequency will be evaluated as part of the remedial design for the proposed amended remedy.

- Require the use of in-situ capping technology to isolate the contaminated sediments in the Upper Arm Swamp Zone.
- Require the installation of water level controls within the Upper Arm Swamp Zone to maintain current pool conditions.
- Require wetland mitigation to compensate for the temporary or permanent loss of wetlands due to the use of in-situ capping technology in the Upper Arm Swamp Zone.
- Make the following changes to the 1993 Remedial Action Objectives:
 - Replace the target level of 0.5 ppm mercury in whole bodies of bottom feeders, carnivorous, and omnivorous fish with a target level of 0.3 ppm mercury (wet weight) in edible fish fillet.
 - Replace the 1.1 ppm mercury standard for upper trophic level mammals with a standard of 0.2 ppm mercury (wet weight) in whole body of forage-size fish.
- During the **Remedial Design**, develop and implement a monitoring and assessment program which includes a sampling plan to collect surface water, soil, sediment, and biological samples from the Cold Creek Swamp and selected offsite locations over time. The purpose for this monitoring and assessment program will be to document conditions in the Cold Creek Swamp and offsite locations before and after the Upper Arm Swamp Zone remedy is implemented. These data will be used for the following:
 - To provide a baseline for future sampling events conducted after remedy construction.

- To verify the integrity of the Upper Arm Swamp Zone cap.
 - To determine if there are natural processes occurring that are reducing or have the potential to reduce the ecological risk in the Middle/Lower Swamp Transition Zone without the need for remedial action. This monitoring will also provide data that can be used in designing a remedial action for this zone if one becomes necessary to address residual risk.
 - To monitor and evaluate the overall effectiveness of the OU3 remedy in reducing ecological risk in Cold Creek Swamp by periodically collecting surface water, soil, sediment, and biological samples from the Cold Creek Swamp and from select off-site locations.
- To establish institutional controls to prevent future disturbance of the Upper Arm Swamp Zone cap and the floodplain and swamp areas in the Middle/Lower Swamp Transition Zone.

BASIS FOR PROPOSED CHANGES

The potential loss of habitat as a result of implementing the 1993 Cold Creek Swamp remedy has been a continuing concern for the PRPs, the community, and ADEM. Of the remedial technologies evaluated in 1993, the selected remedy contained in the OU3 ROD represented the best mix of technologies available at the time to achieve the maximum ecological risk reduction in the Cold Creek Swamp, while minimizing collateral habitat destruction. However, implementing the OU3 ROD would have caused the permanent loss of 25 acres of wetland habitat in the Upper Arm Swamp Zone and the possible loss of up to 25 acres of bottomland hardwood habitat in the Transition Zone. These wetland losses would have required wetland mitigation. The construction of the surface water diversion channel would have caused the loss of 25 acres (or more) of woodland habitat adjacent to the Upper Arm Swamp Zone.

In an effort to minimize wetland and woodland habitat loss and to reduce remedy costs, Akzo Nobel voluntarily submitted a request (with supporting documentation, including a 2008 Focused Feasibility Study) to EPA, proposing that the OU3 remedy be updated to allow the use of AquaBlok®, an in-situ capping technology, which would physically isolate the contaminated sediments in the Upper Arm Swamp Zone. AquaBlok®, a product patented in 1996, was developed for the purpose of sealing off and isolating contaminated sediments in place without significant disturbance to existing deepwater or wetland habitats. At the time the OU3 ROD was signed, AquaBlok® had not been developed; therefore, it was not available for consideration in 1993.

EPA evaluated Akzo Nobel's proposal and in August 2008 issued a Proposed Plan based on the results of this evaluation. EPA subsequently determined that the Superfund process could not move forward until EPA and the PRP negotiated an Administrative Settlement Agreement and Order on Consent requiring Akzo Nobel to submit a new and expanded Focused Feasibility Study for EPA's consideration.

Based on EPA's evaluation of this new January 2010 Focused Feasibility Study, EPA is proposing to amend the OU3 ROD to require the use of in-situ capping technology in place of the multimedia cap to isolate the contaminated sediments in the Upper Arm Swamp Zone. The 1993 ROD requirement to use sheet piling to divide the Upper Arm Swamp Zone into two cells and the construction of a surface water diversion channel to divert surface water flow around the capped area are not needed to implement the in-situ capping technology. This will significantly reduce the amount of collateral habitat destruction. Therefore, EPA is proposing a remedy that will no longer include these remedial components.

The sediments in the Upper Arm Swamp Zone have the highest levels of mercury contamination; therefore, EPA anticipates that isolating these sediments will have a significant impact on reducing the ecological risk in the Swamp.

Monitoring conducted after the issuance of the 1993 ROD may indicate that natural capping of the contaminated sediments in the Middle/Lower Swamp Transition Zone is occurring by periodic flooding of the zone. EPA is proposing to eliminate the 1993 ROD requirement for excavating contaminated sediments in the Middle/Lower Swamp Transition Zone. This will allow for the gathering of additional data to determine if natural processes are occurring that are reducing or have the potential to reduce the ecological risk in the Middle/Lower Swamp Transition Zone without the need for remedial action. This monitoring will also provide data that can be used in designing a remedial action for this part of Cold Creek Swamp if necessary to address residual risk. The approach EPA will follow to develop a monitoring program to identify these natural processes and assess their effectiveness is described in the USEPA document entitled "Contaminated Sediment Remediation Guidance for Hazardous Waste Sites," dated December 2005.

Fish sampling in the Mobile area conducted after 1993 indicates that ambient mercury levels detected in fresh water fish approaches or exceeds the 1993 OU3 ROD fish cleanup level. This poses a problem for measuring the long term effectiveness of the OU3 remedy using only the 1993 ROD cleanup level. If, after the remedy has been implemented, future sampling in the Cold Creek Swamp identifies individual fish with mercury levels above the cleanup level it will be difficult to determine if this is due to mercury levels in the Cold Creek Swamp or ambient mercury levels in the area of Cold Creek Swamp. To further investigate this issue, in 2001 EPA conducted fish, sediment, soil, and water sampling including, among other things, the collection of fish from five background locations near the Cold Creek Swamp. Based on the location and hydrology of these sites relative to the Cold Creek Swamp, fish collected from these sites should not be affected by mercury releases in the Cold Creek Swamp. This background sampling detected mercury levels in some individual fish that exceeded the 1993 ROD cleanup level for fish. To address this issue, EPA is proposing to amend the ROD to require that background reference

locations be established outside of the Cold Creek Swamp for periodic surface water, soil, sediment, and biological sampling. The sampling results from these areas will be used to establish background mercury body burden levels. These background data will be used as part of the monitoring conducted to determine the effectiveness of the remedy in reducing ecological risk in the Cold Creek Swamp.

Conducting remedial activities, based on the 1993 ROD, in the Cold Creek Swamp would impact the wetlands and would require wetlands mitigation. Although EPA anticipates that the use of in-situ capping technology will have less of an effect on the wetlands than the 1993 remedy, EPA is still proposing to include mitigation of wetlands that may be temporarily or permanently impacted by the use of in-situ capping technology.

SUMMARY OF REMEDIAL ALTERNATIVES

In the 1993 ROD the following remedial alternatives were evaluated for OU3:

1993 Alternatives and Projected Costs Evaluated for the Upper Arm Swamp Zone

1. No Action - \$300,000
2. Capping / Surface Water Diversion
 - 2a. Soil Capping with Surface Water Diversion - \$1.45 million
 - 2b. Cement Capping with Surface Water Diversion - \$11.87 million
 - 2c. Asphalt Capping with Surface Water Diversion - \$11.17 million
 - 2d. Multi-layer Capping with Surface Water Diversion - \$11.17 million**
3. Excavation / Onsite Treatment / Offsite Disposal - \$21.2 million to \$78.2 million
4. Excavation / Onsite Treatment / Onsite Disposal - \$30.6 million
5. In-Situ Solidification / Stabilization –

\$36.5 million

The 2010 Focused Feasibility Study reevaluated Excavation Alternatives 3 and 4. This updated evaluation determined that the current projected cost for implementing Alternative 3 ranges from \$55.5 million to \$80.4 million. Alternative 4 costs now range from \$42.4 million to \$71.3 million.

1993 Alternatives and Projected Costs Evaluated for the Middle/Lower Swamp Transition Zone

1. No Action - \$625,000
- 2. Excavation with Hauling to the Upper Arm Swamp Zone - \$1.47 million to \$6.57 million**
3. Excavation with Onsite Landfill Disposal – \$2.37 million to \$28.67 million
4. Excavation with Offsite Landfill Disposal – \$7.67 million to \$69.97 million
5. Capping with Soil - \$1 million to \$11.2 million
6. Capping with Asphalt - \$1 million to \$11.2 million
7. Multi-layer Capping - \$1 million to \$11.2 million

EVALUATION OF ALTERNATIVES

The 1993 selection of the preferred alternative for OU3, the 1996 ESD, and the amendments described in this Proposed Plan are the result of a comprehensive screening and evaluation process. The 1993 OU3 Feasibility Study identified and analyzed appropriate technologies/alternatives for addressing contamination in the Cold Creek Swamp. The 1993 Feasibility Study described in detail the alternatives considered, as well as the process and criteria EPA used to narrow the list of the potential remedial alternatives to address the OU3 contamination. As stated previously, this document, together with the 2010 Focused Feasibility Study, are available for the public's review in the Information Repository/Administrative Record.

EPA used the following nine criteria to evaluate the 1993 alternatives and the new alternative identified in the 2010 Focused Feasibility Study. The remedial alternative selected for a Superfund site must achieve the two threshold criteria as well as attain the best balance among the five evaluation criteria. EPA's Proposed Alternative may be altered or changed based on the two modifying criteria. The nine criteria are as follows:

THRESHOLD CRITERIA

- 1 **Overall Protection of Human Health and the Environment:** The degree to which each alternative eliminates, reduces, or controls threats to public health and the environment through treatment, engineering methods, or institutional controls.
- 2 **Compliance With Applicable or Relevant and Appropriate Requirements (ARARS):** The alternatives are evaluated for compliance with all state and federal environmental and public health laws and requirements that apply or are relevant and appropriate to the site conditions.

EVALUATION CRITERIA

- 3 **Long-term Effectiveness:** The alternatives are evaluated based on their ability to maintain reliable protection of public health and the environment over time once the cleanup goals have been met.
- 4 **Reduction of Contaminant Toxicity, Mobility, and Volume (M/T/V):** EPA evaluates each alternative based on how it reduces: (1) the harmful nature of the contamination, (2) its ability to move through the environment, and (3) the volume or amount of contamination at the Site.
- 5 **Short-term Effectiveness:** The length of time needed to implement each alternative is considered, and EPA assesses the risks that may be posed to workers and nearby residents during construction and implementation.

- 6 **Implementability:** EPA considers the technical feasibility (e.g., how difficult the alternative is to construct and operate) and administrative ease (e.g., the amount of coordination with other government agencies that is needed) of a remedy, including availability of necessary materials and services.
- 7 **Cost:** The benefits of implementing a particular remedial alternative are weighed against the cost of implementation. Costs include the capital (up-front) cost of implementing an alternative over the long-term, and the net present worth of both capital and O&M costs.

MODIFYING CRITERIA

- 8 **State Acceptance:** EPA requests state comments on the Remedial Investigation and Feasibility Study reports, as well as the Proposed Plan, and must take into consideration whether the state concurs with, opposes, or has no comments on EPA's preferred alternative.
- 9 **Community Acceptance:** To ensure that the public has an adequate opportunity to provide input, EPA holds a public comment period and considers and responds to all comments received from the community prior to the final selection of a remedial action.

In 1993, EPA used the evaluation criteria described above to compare the nine alternatives for the Upper Arm Swamp Zone and the seven alternatives for the Middle/Lower Swamp Transition Zone to determine which best eliminated or reduced the ecological risks posed by the OU3 contaminated sediments. Based on the results of the evaluation, EPA selected Alternative No. 2d for the Upper Arm Swamp Zone and Alternative No. 2 for the Middle/Lower Swamp Transition Zone. The State of Alabama concurred with the selected remedy.

The alternatives for the Upper Arm Swamp Zone are described in Section 7.0 of the 1993 ROD. Alternatives for the Middle/Lower Swamp Transition Zone are described in Section 8.0.

1993 OU3 ROD SELECTED REMEDY

The following descriptions of Alternative No. 2d and Alternative No. 2 were taken from the 1993 ROD.

Upper Arm Swamp Zone

ALTERNATIVE No. 2d: Multi-layer Capping with Surface Water Diversion

This alternative will be the same as 2b except with a multi-layer cap appropriate for the disposal of solid waste under the Resource Conservation and Recovery Act (RCRA). This type of cap will consist of a compacted clay layer, a high density polyethylene layer, a drainage layer, a gas vent layer, and a soil revegetation layer. A multi-layer cap will provide additional protection from infiltration and erosion of rainwater. The protection from infiltration will reduce the potential for any virtual migration of mercury into the groundwater, including any downward migration into groundwater.

The Total Cost for this alternative will be approximately \$11.17 million.

Middle/Lower Swamp Transition Zone

ALTERNATIVE No. 2 - Excavation with Hauling to Upper Arm

This alternative will involve excavating and hauling contaminated sediment, clearing and removing selected wooded areas as applicable, and backfilling and revegetating excavated areas. Of the 25 acre area, approximately five acres between the power line cuts from Cold Creek to the edge of the floodplain will require clearing, in addition to the wooded acres east and west of the power lines. Excavation of 25 acres to a depth of two feet will result in the removal of approximately 80,000 yd³ of contaminated sediment.

The contaminated sediment will be moved to the Upper Arm Swamp Zone and placed for capping. The excavated area will be backfilled with clean soil and revegetated. To compensate for the loss of wetlands this area would be restored to wetland status. Mitigation elsewhere on site will be required to compensate for temporal loss of wetland functions and values. The total extent of

excavation will be determined during the Remedial Design phase.

Alternative 2 will cost between \$1.47 million and \$6.57 million.

PROPOSED AMENDMENTS

EPA is proposing the following amendments to the 1993 OU3 ROD and 1996 ESD:

Upper Arm Swamp Zone Remedy

- Amend Alternative 2d to require the use of in-situ capping technology in place of the multimedia cap to isolate the contaminated sediments in the Upper Arm Swamp Zone.
- Eliminate the Alternative 2d requirement that a surface water diversion channel be constructed to divert surface water flow around the capped area of the Upper Arm Swamp Zone.
- Eliminate the Alternative 2d requirement that sheet piling be used to divide the Upper Arm Swamp Zone into two cells.
- Require wetland mitigation to compensate for the temporary or permanent loss of wetlands due to the use of in-situ capping technology in the Upper Arm Swamp Zone.
- Require the installation of water level controls within the Upper Arm Swamp Zone to maintain current pool conditions.
- Develop and implement a long-term monitoring plan to verify the effectiveness of the in-situ capping technology.
- Develop and implement institutional controls to prevent disturbance of the in-situ capping technology.

Middle/Lower Swamp Transition Zone Remedy

- Eliminate the requirement to implement Alternative No. 2. This will allow time to gather additional data to determine if there are natural processes occurring in the lower swamp that are reducing, or have the potential to reduce, the ecological risk posed by the

mercury-contaminated sediments in the Middle/Lower Swamp Transition Zone. The approach EPA will follow to develop a monitoring program to identify and assess the effectiveness of these natural processes is described in the USEPA document entitled “Contaminated Sediment Remediation Guidance for Hazardous Waste Sites,” dated December 2005.

- Develop and implement institutional controls to prevent disturbance of the surface of the floodplains and swamp areas in the Middle/Lower Swamp Transition Zone.

Pre-remedial Action Sampling

- During the Remedial Design, develop and implement a sampling plan to collect surface water, soil, sediment, and biological samples from the Cold Creek Swamp and selected offsite locations. The purpose for this sampling event will be to document conditions in Cold Creek Swamp and at offsite locations before the new OU3 remedy is implemented. These data will be used: 1) as a baseline for future sampling events conducted after the remedy is constructed; and 2) to monitor the effectiveness of the Upper Arm Swamp Zone remedy in reducing ecological risk in the Cold Creek Swamp.

Post Remedial Action Monitoring

- Develop a monitoring and evaluation program and implementing schedule to collect surface water, soil, sediment, and biological samples from the Cold Creek Swamp and selected offsite locations after implementation of the OU3 remedy. EPA will use these data to monitor the effectiveness of the Upper Arm Swamp Zone remedy in reducing ecological risk in Cold Creek Swamp and to identify and assess potential natural processes occurring that may lower ecological risk in Middle/Lower Swamp Transition Zone.
- Eliminate the 1996 ESD requirement for long term monitoring of a section of the Mobile River. The need to conduct monitoring in the River, the type of monitoring, and the

monitoring frequency will be evaluated as part of the remedial design for the proposed amended remedy.

CRITERIA EVALUATION OF PROPOSED AMENDMENTS

EPA believes that amending the 1993 OU3 remedy (as modified in 1996) will not affect its ability to reduce or eliminate the ecological risk in the Cold Creek Swamp. The following is a criteria evaluation of the proposed amendments.

Overall Protection of Human Health and Environment

The proposed amendments to the OU3 remedy will not diminish the remedy’s ability to protect human health and the environment. The remedy continues to provide protection through isolating the contaminated sediments in the wetlands and long-term monitoring, while minimizing habitat destruction.

Compliance With ARARs

The list of Federal and State ARARs identified in Tables 11-1 and 11-2 of the 1993 ROD has been revised and updated. The current ARARs were used in the evaluation of the proposed amendments to the OU3 remedy. It has been determined that the proposed amendments will comply with all identified applicable or relevant and appropriate requirements.

Long-Term Effectiveness and Permanence

EPA believes the proposed amendments to the OU3 remedy will not reduce the remedy’s long-term effectiveness and permanence. Implementing the amended remedy will reduce the amount of habitat destruction while achieving the same level of long-term effectiveness associated with the 1993 remedy. The use of in-situ capping technology will result in long-term permanence due to the fact that the material used in constructing the cap will be non-biodegradable, physically durable, and resistant to erosive hydraulic forces.

Reduction of Toxicity, Mobility or Volume Through Treatment

The proposed amendments do not include treatment. Similarly, the 1993 remedy did not include treatment. Therefore, the statements made in Section 14.5 of the ROD regarding the selected remedy not meeting the preference for treatment also apply to the proposed amendments to the remedy.

Short-Term Effectiveness

The proposed amendments will increase the short-term effectiveness of the remedy by reducing the amount of time required to implement the remedy. By using the in-situ capping technology in place of the multimedia cap to isolate the contaminated sediments in the Upper Arm Swamp Zone and by deleting the surface water diversion channel requirement, a significant savings in time will be achieved.

Implementability

The proposed amendments should make the OU3 remedy significantly easier to implement. The 1993 remedy requires the construction of a multimedia cap to isolate the contaminated sediments in the Upper Arm Swamp Zone, together with the construction of a surface water diversion channel to divert water flow around the cap. By using the in-situ capping technology to isolate the contaminated sediments, there is no longer a need for a multimedia cap and the surface water diversion channel.

Cost

The 1993 ROD estimated a cost of \$17,740,000 to implement the OU3 remedy. The updated net-present-value is estimated to be \$43,144,000. The estimate for implementing the proposed Amended ROD (AROD) is \$7,570,000. The proposed amendments will result in a significant cost savings.

State and Community Acceptance

The Alabama Department of Environmental Management (ADEM) has expressed agreement with EPA on the Proposed Plan. EPA will seek ADEM's written concurrence prior to amending the remedy.

The purpose of this Proposed Plan is to seek input from the public on the proposed amendments to the 1993 OU3 remedy. EPA will amend the selected remedy only after careful consideration of all comments received. EPA will respond to comments in the Responsiveness Summary included in the AROD.

PREFERRED ALTERNATIVE

EPA's preferred remedy for the final remediation for OU3 is to implement the 1993 ROD with the following amendments.

- Eliminate the 1993 ROD requirement that a multimedia cap be constructed over the contaminated sediments in the Upper Arm Swamp Zone.
- Eliminate the 1993 ROD requirement that a surface water diversion channel be constructed to divert surface water flow around the capped area of the Upper Arm Swamp Zone.
- Eliminate the 1993 ROD requirement that sheet piling be used to divide the Upper Arm Swamp Zone into two cells.
- Eliminate the 1993 ROD requirement that contaminated soils in the Middle/Lower Swamp Transition Zone be excavated and disposed in the Upper Arm Swamp Zone before capping.
- Eliminate the 1996 ESD requirement for long term monitoring of a section of the Mobile River. The need to conduct monitoring in the River, the type of monitoring, and the monitoring frequency will be evaluated as part of the remedial design for the proposed amended remedy.
- Require the use of in-situ capping technology to isolate the contaminated sediments in the Upper Arm Swamp Zone.
- Require the installation of water level controls within the Upper Arm Swamp Zone to maintain current pool conditions.

- Require wetland mitigation to compensate for the temporary or permanent loss of wetlands due to the use of in-situ capping technology in the Upper Arm Swamp Zone.
- Make the following changes to the 1993 Remedial Action Objectives:
 - Replace the target level of 0.5 ppm mercury in whole bodies of bottom feeders, carnivorous, and omnivorous fish with a target level of 0.3 ppm mercury (wet weight) in edible fish fillet.
 - Replace the 1.1 ppm mercury standard for upper trophic level mammals with a standard of 0.2 ppm mercury (wet weight) in whole body of forage-size fish.
- During the Remedial Design, develop and implement a monitoring and assessment program which includes a sampling plan to collect surface water, soil, sediment, and biological samples from the Cold Creek Swamp and selected offsite locations. The purpose for this monitoring and assessment program will be to document conditions in the Cold Creek Swamp and offsite locations before and after the Upper Arm Swamp Zone remedy is implemented. These data will be used for the following:
 - To provide a baseline for future sampling events conducted after remedy construction.

To verify the integrity of the Upper Arm Swamp Zone cap.

- To determine if there are natural processes occurring that are reducing or have the potential to reduce the ecological risk in the Middle/Lower Swamp Transition Zone without the need for remedial action. This monitoring will also provide data that can be used in designing a remedial action for this zone if one becomes necessary to address residual risk.
- To monitor and evaluate the overall effectiveness of the OU3 remedy in reducing ecological risk in the swamp by periodically collecting surface water, soil, sediment, and biological samples from the Cold Creek Swamp and from select off-site locations.
- The approach EPA will follow to develop this monitoring program is described in the USEPA document entitled “Contaminated Sediment Remediation Guidance for Hazardous Waste Sites,” dated December 2005.
- Require the establishment of institutional controls to prevent future disturbance of the Upper Arm Swamp Zone cap and the floodplain and swamp areas in the Middle/Lower Swamp Transition Zone.

PUBLIC PARTICIPATION

The purpose of this Proposed Plan Fact Sheet and the public comment period is to encourage input from the public during the remedy selection process. Community acceptance of the preferred alternative will be evaluated after the public comment period and will be described in the ROD for the Site.

EPA relies on public input to ensure the concerns of the community are considered in selecting an effective remedy for each Superfund Site. The OU3 AR documents are available for public review and copying at the:

Satsuma Branch Library

5466 Old Highway 43 North

Satsuma, Alabama 36572

(251) 679-0700

Hours:

Monday, Wednesday, Friday: 10:00 am – 5:00 pm

Tuesday, Thursday: 10:00 am – 6:00 pm

Saturday: 9:00 am – 2:00 pm

Sunday: Closed

U.S. EPA – Region 4

Superfund Records Center

61 Forsyth St., SW

Atlanta, GA 30303

(800) 435-9234, ext. 2-8463

Hours:

Monday through Friday: 8:00 am – 4:00 pm

Saturday and Sunday: Closed

A public comment period for receiving comments on EPA's Proposed Plan begins on **July 31, 2010**, and concludes **August 30, 2010**. EPA will hold a public meeting to present the Proposed Plan for the Amendments to the ROD and ESD on Monday, **August 2, 2010**, from 6:00 pm to 8:00 pm at the LeMoyne Emergency Services, Inc. building located at 13145 Highway 43 North, Axis, Alabama 36505.

EPA is issuing this Proposed Plan Fact Sheet as a part of its public participation responsibilities under Section 117(a) of the CERCLA, as amended, and the NCP. The public participation requirements set out in the NCP at 40 C.F.R. §300.435 (c)(2)(i) have been met. A public notice will be published in a local newspaper.

If you have any questions about the information provided in this Fact Sheet, please contact the EPA Project Manager for this Site, Michael Arnett at 404-562-8921 or via email at arnett.michael@epa.gov.



GLOSSARY

Administrative Record: Material documenting EPA's selection of cleanup remedies at Superfund sites, usually placed in the **information repository** near the Site.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): Also known as **Superfund** is a federal law passed in 1980 and modified in 1986 by the Superfund Amendment and Reauthorization Act (SARA); the act created a trust fund, to investigate and cleanup abandoned or uncontrolled hazardous waste sites. The law authorizes the federal government to respond directly to releases of hazardous substances that may endanger public health or the environment. EPA is responsible for managing the Superfund.

Feasibility Study (FS): Study conducted after the Remedial Investigation to determine what alternatives or technologies could be applicable to the site specific COCs.

Information Repository: A library or other location where documents and data related to a Superfund project is placed to allow public access to the material.

Institutional Controls: Restriction that prevents the owner inappropriately developing the property. The restriction could be implemented as a "deed restriction" and is designed to prevent harm to workers or potential residential development.

National Oil and Hazardous Substance Pollution Contingency Plan (NCP): The Federal Regulation that guides the Superfund program. The NCP was revised in February 1990.

Operable Units (OUs): Different phases of a Remediation Project. Often a Superfund Site is divided in phases to better address different pathways and areas of contamination.

Proposed Plan: Superfund public participation fact sheet which summarizes the preferred cleanup strategy and the rationale and a summary of the RI/FS.

Record of Decision (ROD): A public document describing EPA's rationale for selection of a Superfund cleanup alternative.

Remedial Investigation (RI): Part one of a two part investigation conducted to fully assess the nature and extent of the release, or threat of release, of hazardous substances, pollutants, or contaminants, and to identify alternatives for clean up. The Remedial Investigation gathers the necessary data to support the corresponding Feasibility Study.

Responsiveness Summary: A summary of oral and written comments received by EPA during a comment period on key EPA documents, and EPA's responses to those comments. The responsiveness summary is a key part of the ROD, highlighting community concerns for EPA decision-makers.

Superfund: The common name used for the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), the federal law that mandates cleanup of abandoned hazardous waste sites.

Figures

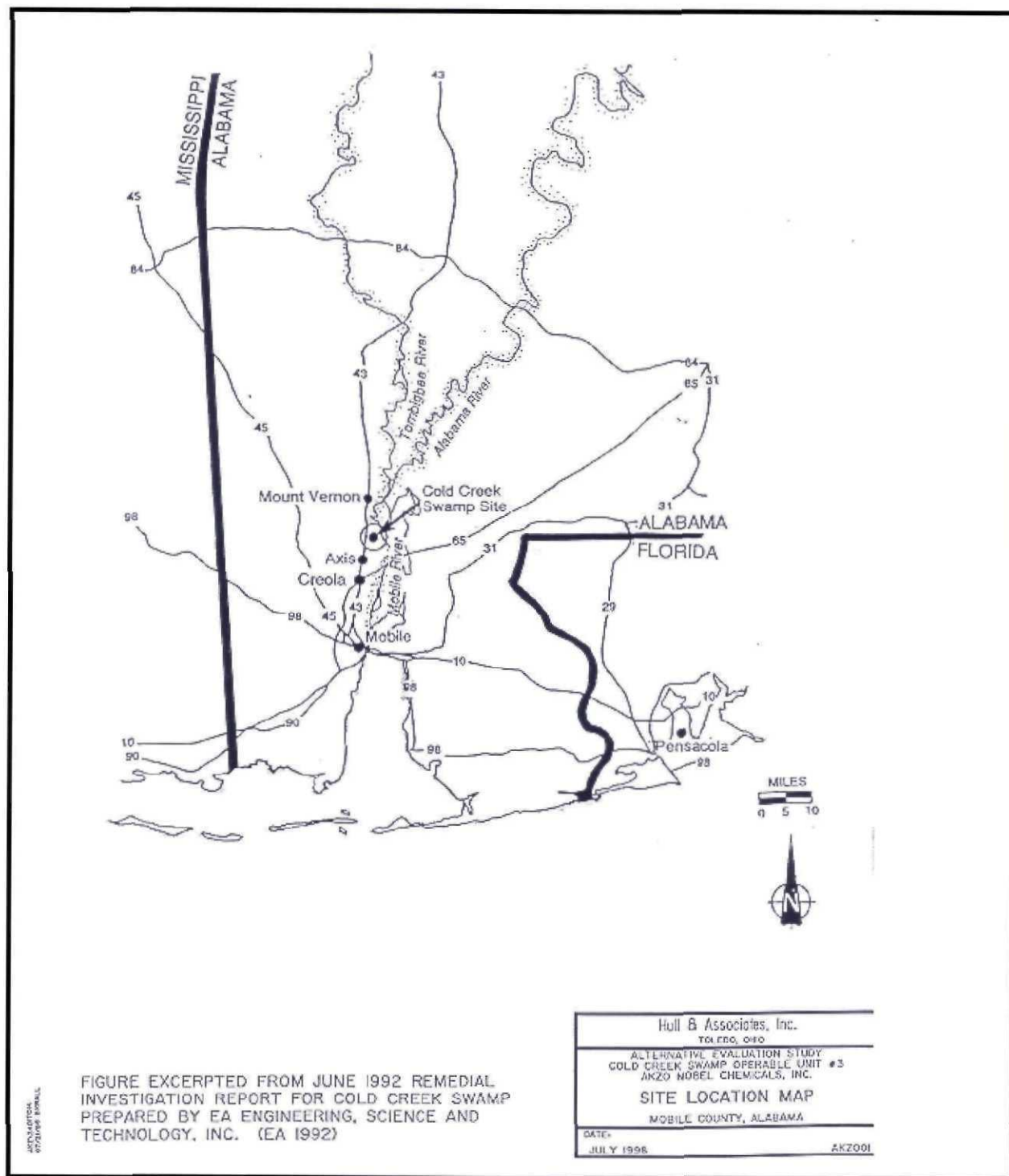


Figure 1

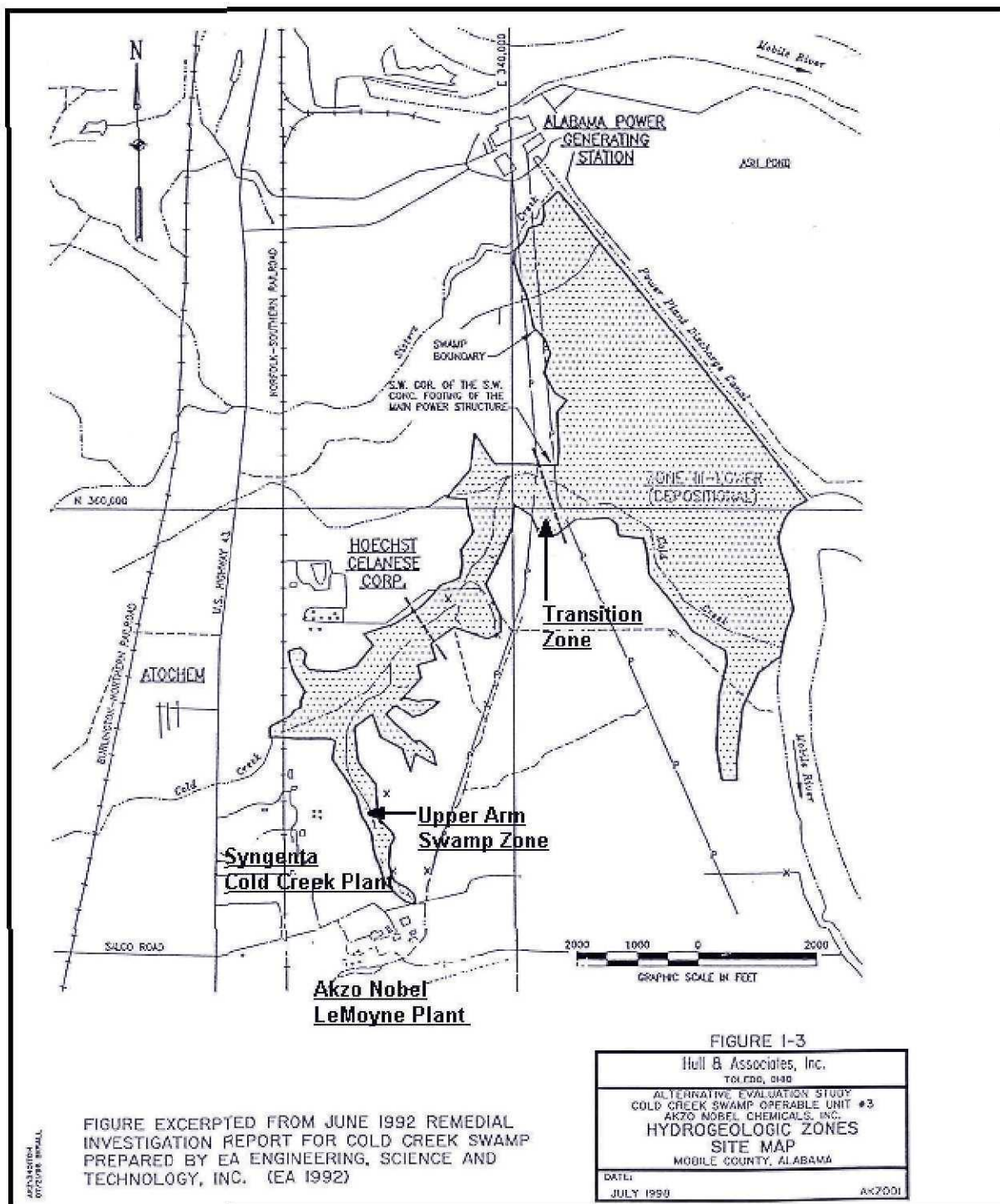


Figure 2

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for amending the Stauffer Operable Unit Three Record of Decision is important in helping EPA select a remedy for this site. You may use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



STAUFFER OU3 PROPOSED AMENDED ROD

PUBLIC COMMENT SHEET

Name_____

Address_____

City_____State_____Zip_____

Place
Stamp
Here

Michael Arnett
Remedial Project Manager
Superfund Remedial Branch
U. S. EPA, Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-3104